

Center subdues year 2000 computer bug

The Year 2000 bug at Ames has been subdued as far as mission critical computer business systems and supercomputers are concerned, according to Ray O'Brien, the Center's Y2K project manager. Ames has completed all repairs and testing for agency-defined mission-critical systems, meeting the NASA Headquarters goal of solving a major portion of the Ames Y2K computer bug problems by February.

Also known as the Year 2000 problem, the computer bug results from computers or information technology devices programmed with years represented by only two digits. Some experts predict that, when the year 2000 arrives, widespread computer problems may occur because many of the machines will "think" the year is really 1900. The Ames Year 2000 Project Office is working with organizations to make certain the center experiences no major disruptions due to this problem.

"Forty-one business applications including several large COBOL systems were tested in a four-week period," said Cyndi Martinez of the Y2K Office at Ames.

Common Business Oriented Language (COBOL) may contain many lines of code. Prior to final testing, Recom Technologies, Inc., the contractor supporting Code JT's business systems group, spent more than a year analyzing hundreds of thousands of lines of code for non-compliance and then making the necessary repairs.

"Conducting time-shift testing has given Ames a good level of assurance that our mission-critical business applications are now ready for the Y2K rollover," Martinez said. During time-shift testing, computer operating systems are set to various dates in the year 2000 in order to ensure that software applications and related components read and use dates correctly.

Highly visible Code IN supercomputers are regarded as Year 2000 compliant following an effort during which major resources were committed to the project under the direction of Division Chief Bill Feiereisen. Code IN's chief engineer, Bruce Blaylock, and a large technical support team

staffed by Sterling Software and MRJ Contractors, conducted Year 2000 compliance tests and made repairs. In January, the IN team set supercomputer-related clocks ahead to various dates in 2000. Free supercomputer time was given to about 1,500 users during a four-day test period to make sure the computer systems were "well exercised."

"No major problems were experienced during the test, and the facility is now considered Y2K compliant," according to Code I's Y2K Directorate Coordinator Bill

critical to Ames' customers from other agencies, universities and industry," Smith said. "It's one thing if you have an isolated system, and you don't know whether or not you're compliant. But potential failure of a high-visibility facility is a serious threat to your reputation, and you may lose customers if there is significant downtime."

"Ames is the agency lead for supercomputing, and is the Center of Excellence for Information Technology," she explained. "That's why we're breathing a sigh of relief that the supercomputing and business systems are compliant and ready for the year 2000 roll-over."

"But the center's job is not complete," Smith cautioned. "In 1998, we conducted a thorough assessment of the important information technology systems at Ames, and more than 100 people have been working to perform Y2K repairs and conduct tests on other important systems at Ames."

The additional repairs and testing must be complete by the end of February to help meet NASA Headquarters' goal of fixing all Year 2000 computer bugs by early 1999.

"You limit Y2K risk by attacking the threat before it becomes a problem," said Smith. "Assessment and Y2K repairs were our first steps; contingency planning and user awareness are the next two steps."

Anyone with questions or comments about the Year 2000 bug and its potential effects on Ames should contact Ray O'Brien, at ext. 4-6875 or Cyndi Martinez at ext. 4-0905 at the project office.

For more information about Year 2000 activities and resources, visit the Ames Y2K website at URL: <http://george.arc.nasa.gov/year2000/>

The Ames Year 2000 Project Office is part of the Applied Information Technology Division (Code JT).

BY JOHN B LUCK



photo by Dominic Hart

The Code JT business systems group poses with Ray O'Brien and Scott Santiago behind the many volumes of Year 2000 testing documents generated for Y2K certification.

Thigpen.

"Code IN really stepped up to the plate to ensure the compliance of their facility," said O'Brien.

"The real success story here is that we have two very different sets of mission-critical computer systems, supercomputers and business applications, and these have been repaired and thoroughly tested to avoid Y2K problems," said Shirley Smith, technical lead at Ames for the Y2K Project. "These systems are now ready to be agency certified as Y2K compliant."

Mission-critical systems include the Ames business systems as well as the Numerical Aerospace Simulation facility that contains supercomputers that NASA and other entities use to conduct computational fluid dynamics studies and other functions. The business systems generate financial reports, process payroll and help process government purchases.

"The supercomputer systems are also



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Ames ISO Web-site address:
<http://dqa.arc.nasa.gov/iso9000>

ISO begins with you!

Have you ever said, "I wish someone would do something about this problem"? Well, you are that someone, and you can "do something about that problem."

You have a vehicle for "doing something about it" under the Ames Quality System. Based on ISO 9001, this systematic method of operating or doing business provides for your inputs so that we can consistently produce quality products and services for our customers. Under this system, you can identify problems with the way Ames does business, and take action (Corrective and Preventive). You can initiate a Corrective Action Request for existing problems (Corrective Action) or for a suspect condition or process that, if not changed, will lead to a problem (Preventive Action).

You can document your concerns or problems on a Corrective (Preventive) Ac-

tion Request (CAR) as outlined in the Corrective and Preventive Action System Level Procedure (SLP) 53.ARC.0014. This procedure, which we are to follow, is on the Internet at <http://dqa.nasa.gov/iso9000/>, under ISO documents. The Corrective Action Request (CAR), Form ARC755 is at the bottom of the same page. Corrective Action Requests are to be sent to the centerwide Corrective Action Request Coordinator by email at ccarc@mail.arc.nasa.gov.

The Corrective and Preventive Action Program allows you to transform the Ames Quality System, thereby improving it. With your participation, we can keep the Quality System up-to-date and effective, and reach the goals of the Ames Quality Policy: Providing world class quality products and services that meet or exceed our customers' requirements.

By RICHARD W. C. HASE



NASA college scholarship

The NASA College Scholarship Fund, Inc., a Texas nonprofit corporation, was established to award scholarships to qualified dependents of NASA and former NASA employees agencywide.

The scholarship fund was established as the direct result of a substantial unsolicited gift offered by the noted Pulitzer Prize winning author, James A. Michener. He gave as his reasons for the gift that he held the people of NASA in high esteem for their good work through the years. He also said that he thought it important for education to go forward in this country. Other significant contributions have been made by the Freedom Forum to honor shuttle crew members and by the Johnson Space Center Chapter of the NASA alumni league. Many NASA employees have contributed to the fund directly or through the Combined Federal Campaign.

Since 1982, 78 scholarships have been awarded to dependents of NASA employees from across the Agency. There are now 20 dependents who are receiving the scholarship grant.

Six scholarships will be awarded in the amount of \$2,000 each in this sixteenth year of the program (1999-2000 school year). The renewable scholarship is for a maximum of \$8,000 during six calendar years. Applicants must be pursuing a course of study in the science or engineering field that will lead to a recognized undergraduate degree at an accredited college or university in the United States.

All applicants must, in addition to the NASA dependency requirement, be graduated properly from an accredited public, private, or parochial high school or be currently enrolled in college and have a good

academic standing. An applicant must have a combined high school grade and college (if any) grade point average of 2.5 on a 4.0 scale or the equivalent.

After meeting the minimum requirements, applicants will be ranked based on the following objective standards: (1) academic preparation, including all high school grades, any college grades, high school graduating class rank and pattern of courses; (2) school activities; (3) community activities; (4) performance on recognized tests designed to measure ability and aptitude for higher education, for example, Scholastic Aptitude Test (SAT) or American College Test (ACT); (5) written recommendations from instructors or other knowledgeable individuals not related to the applicant (limit of three), for example, school counselors, teachers and community leaders; and (6) one-page statement of academic purpose by applicant.

All completed application forms, transcripts, scores and materials must be mailed in a sealed envelope directly to:

NASA Johnson Space Center
AH12/NASA College
Scholarship Fund, Inc.
Building 1, Room 840
2101 NASA Road 1
Houston, TX 77058

They must arrive no later than March 31. Applications for the scholarships may be obtained by calling the NASA college scholarship fund at ext. 4-0818 or Janine Ciffone at ext. 4-4948.

You may also request forms by email at jciffone@mail.arc.nasa.gov

By JANINE C. CIFFONE



AAE receives grants

The Friends of the Ames Aerospace Encounter is pleased to announce two major grants.

Trimble Corporation has donated a state-of-the-art \$5,000 Global Positioning System (GPS). It is being used at the Ames Aerospace Encounter to teach children about navigation and how satellites can be used for precise location in the Earth's neighborhood.

A second grant of \$10,000 from an anonymous donor is being used to enhance the interactive exhibits and enrich the experience of the more than 8,000 students who visit the AAE each year. With a small staff and more than 40 volunteers, the Ames Aerospace Encounter provides hands-on experience in space science and aeronautics for Bay Area 4th - 6th graders.

Groups of as many as 36 students come to Ames year round to spend about 3 hours in docent-led space science, aeronautics, simulated mission control and simulated space station activities. There are many hands-on activities that expose children to concepts of flying, space travel, remote sensing, navigation and performing experiments in space.

"The Friends of the AAE is a non-profit organization set up by docent volunteers to help provide additional support to this wonderful activity," stated Peter Moseley, president. "Although NASA paid for the creation of the AAE, and provides the space and staff, the budget is limited. So, the docents created the Friends of the AAE as a tax-exempt vehicle for obtaining additional support for the Encounter."

For more information about the Friends of the AAE, contact: Peter Moseley at (650) 851-7411 or pmose@aol.com. For volunteer opportunities at Ames, contact Lori Burkart at ext. 4-0494 or email lburkart@mail.arc.nasa.gov

Women's History Month lunch set

On March 3, an Ames sponsored Women's History Month luncheon will be held in honor of Women's History Month. The event will take place from noon to 1:30 p.m. in the Moffett Training and Conference Center. The menu will feature a pasta buffet including: vegetarian lasagna, spaghetti with meat sauce, pasta salad, green salad, French bread, dessert and soft drinks. Tickets are \$12.00 and are available from: Christine Munroe Bldg. 241/225, ext. 4-4695; Patricia Powell, Bldg. 241/115A, ext. 4-6988; and Rosalind Jones Bldg. 241/137, ext. 4-1749.

This year's theme is "Women Putting Our Stamp on America." The guest speaker is LTC Consuelo Castillo Kickbusch US Army (RET).

Center Briefs

SOHO spacecraft detects source of high-speed solar "wind"

Solving a long-standing solar mystery, scientists have discovered the source of fountains of electrified gas that flow from the Sun like water gushing through cracks in a dam. Called the high-speed solar wind, this gas flows out at two million miles per hour from the edges of honeycomb-shaped patterns of magnetic fields at the surface of the Sun.

American and European scientists detected the source using the NASA/European Space Agency's Solar and Heliospheric Observatory (SOHO) spacecraft. The nature and origin of the solar wind is one of the main mysteries SOHO was designed to solve. It operates at a special vantage point about one million miles out in space between the Sun and Earth.

ER-2 wins Collier trophy

Lockheed Martin's U-2S/ER-2 high-altitude aircraft will receive this year's Collier Trophy as the top aeronautical achievement in the U.S. last year, the National Aeronautic Association has recently stated. The U-2S, flown by Air Force Air Combat Command on military missions, and the ER-2, flown by NASA for civilian research, are twice as heavy as the original, classified U-2 and can carry four times the payload. NAA will present the trophy at the Robert J. Collier Presentation Banquet, scheduled April 28 at the Crystal Gateway Marriott Hotel, Arlington, VA.

Heart assist pump effective in European trials

A miniaturized ventricular-assist pump, developed for heart patients and using NASA technology, has been successfully implanted into seven people during European clinical trials. More than 20 additional implants are expected by mid-1999.

The tiny device has functioned normally and to specification, said Dallas Anderson, president and CEO of MicroMed Technology Inc. of Houston, TX, the company to which NASA granted exclusive rights for the pump. One person has undergone a successful heart transplant after 75 days with the device implanted in his chest. That, Anderson said, demonstrates the pump's capability to keep a patient alive until a donor heart becomes available.

Initially called the NASA/DeBakey heart pump, it is based in part on technology used in Space Shuttle fuel pumps. It is intended as a long-term "bridge" to transplant, or as a more permanent device to help patients live more normal lives. About 5 million Americans suffer from heart failure annually. About 35,000 heart failure patients need transplants each year, but only 2,500 donor hearts are available.

1999 Jason project 'bug-catcher' contest winners announced

"Oh, what tangled webs we weave, when we first practice to deceive," wrote Sir Walter Scott, a Scottish poet and novelist in his 1808 poem, "Marmion."

How could he have guessed that, almost two centuries later, students in California would be conceiving ways to deceive and snare insects in the jungles of the Amazon. If Scott were alive today, he would probably have enjoyed the local "bug catcher" contest. No doubt he would have been intrigued by the chance to have his trap catch insects in an adventurous place. His novels, such as "Ivanhoe" and "The Heart of Midlothian," after all, are jam-packed with romance and adventure.

In any case, Bay Area students recently vied for prizes and a chance to test their bug-catchers in the Peruvian Amazon from March 1-12, as part of the 1999 JASON Project X: "Rainforests - A Wet and Wild Adventure." Ames recently announced eight of the local students made award winning "bug catchers."

"Bug catchers is just one of many JASON activities that arouse student interest in science," said Lisa Marie Gonzales, JASON Project coordinator at Ames. Gonzales will be hostess on the Ames end of 54 live satellite broadcasts at the main auditorium with links to the Peruvian rainforest and other locations. There will be 34 sites providing JASON Project satellite programming in addition to Ames.

More than 14,000 Bay Area students are scheduled to attend JASON Project activities this year at Ames, and 3,000,000 students are expected to participate worldwide.

The bug-catcher contest included youngsters competing in three categories: third through fifth grades, sixth through seventh grades and eighth through tenth grades. Gonzales sent the local winning bug catchers to national JASON Project officials for final judging.

Founded by international explorer and RMS Titanic-discoverer Dr. Robert Ballard, the JASON Project is internationally renowned for its ability to incorporate cutting-edge technologies, a multi-disciplinary curriculum, professional training for teachers and Internet communications into

a comprehensive learning program.

Not the traditional textbook style of learning, the JASON Project uses advanced technologies to interest students in science and technology.

Through a unique satellite telepresence system, the 1999 JASON Project will bring the Peruvian Amazon and some of its inhabitants live to classrooms worldwide.

The JASON Project this year is a comparative study of tropical, temperate and fossil rainforests. The sites to be studied are the Amazon Center for Environmental Education and Research (ACEER) in Peru, the Hoh temperate rainforest in Olympic National Park, WA, and Castle Rock, CO,

site of a 63-million-year-old fossil rainforest.

During JASON satellite broadcasts, Ballard will lead a team of researchers and student and teacher "Argonauts" on a 2-week expedition in the Peruvian Amazon. Students will have an opportunity to climb to a height of more than 100 feet to explore layers of the forest and its inhabitants along a quarter-mile-long canopy walkway. On the ground, students will peer inside an ant colony to look at life beneath the forest floor. They will also learn how native people use abundant natural resources for food, shelter and medicine.

Activities on the JASON website include discussion groups, chat sessions, "Ask-an-Expert," curricular exercises and more. The website is at: <http://www.jasonproject.org>

Had he been born in the present time, would Sir Walter Scott become a biologist, a scientist or an engineer, if he were presented with the wonder of science that the JASON Project presents? When he was a baby, Scott had a bone disease. As a consequence, when he was older, he had a limp, and was unable to be as active as other boys. However, he read a great deal. During high school he fell behind, lost interest in school and had poor marks. But he remained very interested in romance, poems and stories. Maybe some of today's students will be inspired by JASON, and they may go on to be scientists, engineers or maybe even poets?



Living and working in Russia

Editors Note: Our former colleague in Ames' Office of External Affairs, Ann Hutchison, now at the Johnson Space Center, is currently on a temporary assignment to Russia, her third. Below are a few highlights of her recent messages "home."

We finally made it to Moscow after stops in Newfoundland (Canada), Keflavik (Iceland) and Norway. A blown engine, several minutes of flying around dumping 15,000 pounds of fuel and an emergency landing highlighted a very long but otherwise uneventful trip.

Our workspace is much improved over my last visit. We have our own public affairs office with the usual business amenities. Down the hall, there's a microwave, refrigerator and water cooler; we don't drink Moscow water unless it's been boiled. Even the bathrooms are better. Both units have toilet seats this time, and even toilet paper.

The apartment where I am staying is nice. Russian pillows are flat and the bedding is strange, sort of quilt-like. It's hard to regulate one's body temperature because there's just one very thick layer. I have to keep the window slightly open to keep from roasting.

Nothing has changed much in the cafeteria, except the staff. Recently, I lunched on cold potatoes, carrots, some kind of ground meat and a sauce. Everything here is high fat. Lunch, including hot tea, the salad, bread with cheese, and a chicken cutlet with mashed potatoes, cost just 33 rubles or about \$1.10. This is far less than before when meals cost \$3-4.

Moscow is typically dreary, gray and overcast this time of year. I went to the embassy this morning on the Metro. It is easy to get lost inside the embassy because it is in several buildings while another is under construction. The "new" one that was built several years ago can't be used because numerous bugging devices were found inside, even within the steel beams, so parts of it are used only for non-secure functions. I took the electric bus to get back; it's quicker and more efficient than the Metro. A ticket costs 2-1/2 rubles or about 10 cents.

I made a trip to Star City, a military compound and site of the Gagarin Cosmonaut Training Center for Russian cosmonauts and future space station crews. The area is heavily wooded and full of snow-covered trees; it is really lovely during the winter. During my tour, I saw a Soyuz spacecraft, the small vehicle used to take new crews to Mir and return crews to Earth that also serves as a crew "lifeboat". There were three Soyuz mock-ups, one being

used to train US and Russian astronaut candidates for the international Space Station. We could hear them in the capsule and watch them via closed-circuit television. I also saw an impressive, full-scale mock-up of the Mir space station and an 18-meter centrifuge capable of producing 30 Gs. A Russian officer said cosmonaut candidates are tested for very short periods at forces up to 8 Gs.

I saw the hydrolab, a 39-foot deep-water tank used to simulate weightlessness in preparing cosmonauts for space walks. NASA uses a similar facility at JSC, but without viewing windows beneath the surface. Finally, I went to the Prophylactorium where cosmonauts live and where the NASA offices at Star City are located. NASA trainers also live in this building. The astronauts live in nice, modern duplexes nearby.

The other night, I went to the ballet "Romeo and Juliet" at the Bol'shoi Theatre accompanied by astronauts Sandy Magnus, Dan Burbank and Jim Reilly. The Bol'shoi is in its 223rd year of performances. It is beautiful and ornate, with lots of gold decoration and red velvet chair cushions. The ballet, including intermissions, lasted 3-1/2 hours, a long time in the chairs provided. The place was full. Our seats were in the "partyor" section, row 11 behind the orchestra. They were on a slight grade, so we could see pretty well. Russians pay 140 rubles for these seats, foreigners 1,100. The practice of charging foreigners higher admission prices is not uncommon.

On the weekend, I took a day trip to Tver' and Torzhok. Our guide, Feliks, entertained us with a wealth of information about Tver and a history of the road we were traveling, the primary link between Moscow and St. Petersburg. On the way, we stopped at a small café for a snack and break. I had a bottle of soda and two small pieces of black bread for just over 10 rubles or about 45 cents. I noticed the locals having breakfast, or perhaps an early lunch, complete with the ever-present bottle of vodka.

Our first stop was along the banks of the Volga river, one of Russia's most famous, to view some buildings designed by the famous architect Matthew Kazakov, a favorite of Catherine the Great. Next, we went to a "semicircular square" to view the primary administrative and cultural buildings of old Tver'. Lenin's birthday was recent, so there were fresh flowers at the base of a large statue of him in the middle of the square. Feliks explained that communists still control Tver' and the surrounding area, so it is referred to as the "red belt" around Moscow.

I visited the "traveling" palace of Catherine the Great where she stayed overnight during the 5-day trips between St. Petersburg and Moscow. Built in 1767, it is now in pretty bad condition, as are the majority of Russia's ancient structures. The

masonry is crumbling. We saw only a few rooms on the first floor of the palace, set up with exhibits of various portraits and other paintings. One item of interest: painters survived only by the grace of wealthy patrons, so the portraits of their benefactors always flattered them.

The ballroom was painted a soft pink, with beautiful Italian marble columns at either end. The second room's walls were a deep purple, the third, chocolate brown. Ornate white moldings and chandeliers in each room provided some sense of the opulence once present.

Next, we visited the former residence of a wealthy merchant, also the place where Peter the Great once spent the night. Before entering, we observed the Russian custom of removing our outer coats (it is considered extremely impolite to enter a museum, office or restaurant while wearing a heavy coat) and put on tapochki, huge slippers that tie around the ankle. They are big enough to fit over heavy winter boots and are worn only inside to protect the floors from mud and snow. This house contained several rooms of period artifacts. One room, set up to show a typical peasant house of this period, contained the religious icon in one corner; nearby was a wooden table and benches for meals. (People also slept on these benches.). Adjacent was a large stove, used for both cooking and heating the house. Russian stoves of this type are still found in some country homes. The stoves are large, tiled, box-like structures. A blanket can be put on top, and people can sleep there in the warmest spot in the house.

A lovely little gift shop was selling beautiful, hand-made tablecloths for only 100-150 rubles (\$5-\$7). Tver' is known as a center of textile production and book publishing. By the time we left, there were only a couple of tablecloths left in the shop. Prices are much lower outside of Moscow; I felt guilty buying handmade goods at such low prices.

Torzhok, our next stop, is another old town along a river. Feliks recited from memory in both English and Russian several pieces of poetry by Aleksandr Pushkin, much loved and often regarded as the finest Russian poet. Torzhok is a very old town with about 40,000 residents. We stopped at a small museum honoring Pushkin, in a house once owned by the wife of the brother of a woman to whom Pushkin proposed three times during his short life (he was killed in a duel when he was in his late 30s).

We then drove to the remains of the Boris and Gleb monastery, located high on a hill overlooking Torzhok. Renovation has begun on one of the churches, although several others are in a very poor condition. There is a lovely view of the river and town from the monastery. Our final stop was a

continued on back page

Project Astro: Be a visiting astronomer in Bay Area schools

The Astronomical Society of the Pacific is seeking amateur and professional astronomers to participate in Project ASTRO, an innovative National Science Foundation funded program matching amateur and professional astronomers with fourth through ninth grade teachers in Bay Area schools and community centers. NASA astronomers with an interest in education or in presenting astronomy to the public are encouraged to apply.

Each participant will attend a two-day workshop at Ames on August 8-9 with his teacher partner, receive a wide variety of activities and resource materials, work together to plan school-year activities and programs and commit to make at least four daytime visits during the school year.

On Wednesday, March 24, from noon until 1:30 p.m., Bay Area Project ASTRO coordinator Aimee Chang and NASA Project

ASTRO astronomers will be on hand in the auditorium of building 258 (room 127) to introduce Project ASTRO to interested parties and answer questions.

Ames astronomers have been active in Project ASTRO since its inception and have made many valuable contributions. Astronomers have served at schools in Watsonville, East Palo Alto, Menlo Park, San Jose, Newark, Santa Clara, Redwood City, Sunnyvale, South San Francisco and Los Gatos. In the past four years, astronomers have helped more than 800 Bay Area students "reach the stars," an activity that takes place each year.

Arno Granados, the first NASA Project ASTRO participant, joined the pilot program in 1994. In 1995, Louis Haughney and Yvonne Pendleton came on board. Pendleton's classes recently participated in Space Camp, measured the distance to

stars in "bike-years" and contrasted Hollywood and science at special school screenings of Deep Impact and Armageddon.

By 1996, Project ASTRO had added five new NASA astronomers to its ranks. One of them, Duane Carbon, recently wrote "seeing the light go on in the students faces when they understand a new idea is terrific. For me, it's the best reward. Astronomy is a great tool for reaching kids. The interest is already there; you just have to tap into it. Project ASTRO is a win for everybody: students, teachers and astronomer partners. I warmly recommend the experience."

Those who need to make arrangements to access the Ames site for the meeting may contact Carbon at ext. 4-4413 by March 19. Anyone unable to make the meeting but wishing to participate may request an application by calling (415) 337-1100, x101 or e-mailing astro@aspsky.org.

Help minimize winter air pollution

The Bay Area Air Quality Management District has begun their wintertime "Spare the Air Tonight" campaign. This campaign is designed to decrease the harmful effects of air pollution by asking residents to minimize their generation of particulate matter pollution (the tiny particles of solid and liquid material, such as dust, soot and smoke).

Two main pollution sources are automobiles and woodburning, each contributing as much as 30 percent of the Bay Area's particulate matter pollution.

These particles are light enough to remain suspended in the air we breathe for as many as several days, and are small enough to be inhaled deeply into the lungs where the particles can remain for years. Children, the elderly, and individuals with pre-existing lung conditions and heart ailments are most at risk.

Particulate matter accumulates during periods of stagnant winter weather. On a cold, windless evening, you may be able to smell and sometimes see the particulate matter wafting from a neighbor's chimney. You may smell the exhaust from cars warm-

ing up on cold winter mornings.

There are federal and state health standards designed to minimize air pollution. The Bay Area generally meets these air quality standards unless there is a buildup of particulate matter. The Air District is asking the public to "Spare the Air Tonight" to enhance air quality.

You can reduce air pollution generation at your home or apartment by avoiding burning wood. Use compressed logs because they burn as much as 50 percent cleaner than wood. If you must burn wood, then use dry, seasoned wood to start a small, hot fire. After the fire is going, then add harder logs.

You can also reduce vehicular related air pollution by "trip linking," which means you combine many errands into one longer trip. If possible, you may be able to avoid driving by using mass transit, carpooling, walking or bicycling.

As individuals, we can do much to make our neighborhoods cleaner and healthier places to live. Contact 1 (800) HELP AIR for more information or free brochures on particulate matter.

BY LINDA V RABEL

Ames Exchange presents NASA Day at the Ballpark!

Everyone welcome! Employees, contractors, friends and relatives!

SF Giants vs. San Diego Padres
3 Com Park
Sunday April 11 at 1:05 p.m.
Cost: \$5.00

Upper -level reserved ticket includes pre-game tailgating party. Price includes hot dog, chips and peanuts! The first 15,000 children under twelve will receive a free Beanie Baby!

Tickets will be available for purchase the middle of March in the Café and the Gift Shop. Deadline for purchase is March 31. There is no limit on the number of tickets! Bring groups of all kinds (i.e., sports, recreation, friends, Boy Scouts, work, etc.). Last year we had 600 NASA attendees - we want to beat our record of attendance this year!

Join in the fun, Sun and good times! For more info, call ext. 4-0290 or ext. 4-4948.

1999 Science Fair seeks volunteer judges

Organizers of the 39th annual Santa Clara Valley Science and Engineering Fair are looking for volunteer judges.

About 800 6th through 12th-grade students from schools throughout Santa Clara County are expected to enter exhibits in the event to take place March 30 - 31, at San Jose's McEnery Convention Center.

Judges need only to have an interest in science and children and to be available from 1 p.m. to 4 p.m. on March 31.

For information, call the fair association at (408) 736-6616 or visit <http://www.sciencefair.org>.

On-site classes scheduled

Embry-Riddle Aeronautical University has on-site, evening classes. Get your associate and bachelor degrees in aviation business administration, management of technical operations or professional aeronautics. Master's degree programs are conducted in business administration in aviation and aeronautical science. Receive credit for military and professional experience. There are 5 semesters per year. Classes are located in Hangar 1. Next term starts March 15. Please call (650) 603-9694 for more information.

Ames in the Arts

Has Ames played a starring or supporting role in any movies or films you know about? As spice for the forthcoming volume being prepared to celebrate Ames 60th anniversary, the history office is compiling instances when Ames was mentioned or alluded to in novels, films, poems, painting or other fictional works. Thus far, we know of only two. A far-fetched science fiction novel titled "One in Four" (1976) written by Leonard Wibberley (author of *The Mouse That Roared*) has three characters that look an awful lot like Hans Mark, Chuck Klein and John Billingham. A popular novel by Sidney Sheldon mentions a UFO landing being looked into by the Ames Research Center -- in Ames, Iowa.

Please send suggestions to Glenn Bugos at: historian@mail or ext. 4-2992.

X-33 metallic heat shield "ready for flight"

Development of a low-cost space plane took a step forward last month when one of three technologies essential to the plane's success was declared "ready for flight."

The rugged, metallic thermal-protection panels designed for NASA's X-33 technology demonstrator passed an intensive test series that included sessions in high-speed, high-temperature wind tunnels. Tests were conducted in the arc-jet facility at Ames. An arc jet is a wind tunnel which is electrically heated, exposing a test panel to very high temperature airflow similar to the hypervelocity flow a vehicle would experience during re-entry.

"This test exposed four different production metallic panel test articles to an arc-jet environment," explained Mike Green, X-33 project manager at Ames. "The test demonstrated the panels' ability to withstand thermal loads similar to those they will experience during flight and also demonstrated the durability of the seals between the metallic panels while in a high-temperature environment." The panels also were strapped to the bottom of a NASA F-15 aircraft and flight-tested at nearly 1.5-times the speed of sound.

Additional laboratory tests duplicated the environment the X-33's outer skin will encounter while flying roughly 60 miles high at more than 13 times the speed of sound. Earlier, a thermal-panel fit test successfully demonstrated the ease of panel installation and removal.

The thermal protection system combines aircraft and space-plane design, using easy-to-maintain metallic panels placed over insulating material. As the X-33 flies through the upper atmosphere, the panels protect the vehicle from aerodynamic stress and temperatures comparable to those a reusable launch vehicle would encounter while re-entering Earth's atmosphere. Tests have verified that the metallic thermal-protection system will protect vehicles from temperatures approaching 1,800 degrees Fahrenheit.

"NASA is focusing on creating a next generation of reusable launch vehicles (RLVs) that will dramatically cut the costs associated with getting into space," said Dan Dumbacher, NASA X-33 deputy program manager. "One way to cut costs is to design rugged systems that require less maintenance and that are more airplane-like in their operations."

"By developing and proving these systems, we're creating the ability to build

space planes that eventually will fly to orbit, return for servicing, and launch again as often as today's commercial airplanes make scheduled flights," he added. Dumbacher is assigned to NASA's Marshall Space Flight Center, Huntsville, AL, the lead center for developing future space transportation systems.

The remaining two technologies important for low-cost space access are an efficient propulsion system ideally suited to power a lifting body and, more importantly, lightweight-yet-strong composite cryogenic fuel tanks and structures to minimize vehicle weight. Work on those two challenging technologies continues as the X-33 program enters a phase of intense testing and qualification of the vehicle's components.

NASA expects the metallic thermal-protection panels — developed and built by team member BF Goodrich Aerospace/Aerostructures Group in Chula Vista, CA — to dramatically cut maintenance time and costs associated with more fragile thermal-tile systems. Because the metallic panels on the lower surfaces of the X-33 make up the vehicle's windward, aerodynamic structural shell, the system also will obtain significant weight savings over traditional thermal systems, while being much more durable and waterproof.

The X-33 is a half-scale technology demonstrator of a full-scale, commercially developed reusable launch vehicle named "VentureStar," planned for development after the turn of the century. Through airplane-like operations and a single-stage-to-orbit design, a full-scale RLV could dramatically reduce the cost of putting payloads into space from \$10,000 per pound to \$1,000 per pound or lower.

The X-33 is scheduled to make as many as 15 test flights from the Dryden Flight Research Center, CA, to Dugway Proving Ground, UT, and Malmstrom Air Force Base, MT, beginning in 2000. Although suborbital, the X-33 will fly high enough and fast enough to encounter conditions similar to those experienced on an orbital flight path so as to fully prove X-33 systems and performance.

BY MICHAEL MEWHINNEY



Calendar

Jetstream Toastmasters, Mondays, 12 noon to 1 p.m., N-269/Rm. 179. Guests welcome. POC: Jenny Kahn at ext. 4-6987 or Karen Matsuoka at ext. 4-6184.

Model HO/HO3 Railroad Train Club at Moffett Field invites train buffs to visit and join the club in Bldg. 126, across from the south end of Hanger One. The club is in particular need of low voltage electricians and scenery builders & maintainers. Work nights are usually on Friday nights from 7:30 p.m. to 9:30 p.m. Play time is Sunday from 2 p.m. to 4 p.m. For more info, call John Donovan at (408) 735-4954 (work) or (408) 281-2899 (home).

Ames Bowling League meets at Palo Alto Bowl every Tuesday at 6 p.m. The league is in need of substitute bowlers. POC: Mina Cappuccio at ext. 4-1313.

Ames Child Care Center Board of Directors Meeting, Wednesdays, 12 noon to 1 p.m., N-213/Rm. 204. POC: Debbie Wood at ext. 4-0256.

Ames Ballroom Dance Club. Tuesdays: West Coast Swing 3/2, Cha Cha 3/9-3/23. Beg. 5:15-5:45; B/I 5:45-6:15; Int. 6:15-6:45. Moffett Training and Conference Center, Bldg. 3/Showroom. POC: Stu Hopkins at ahopkins@mail.arc.nasa.gov. ABDC Website: http://arcapps.arc.nasa.gov/Info/BallroomDance/Welcome.Htm

Computer Museum History Lecture, Mar 3, 4:15 p.m., Stanford University, NEC Auditorium, Gates Computer Science Bldg, Rm B03. Speaker: Doron Swade, Science Museum, London, U.K. Topic: It will not slice a pineapple: Construction of Charles Babbage's Calculating Engine. POC: Dag Spicer, at ext. 4-2578 or email at: spicer@tcm.org

Ames Contractor Council Meeting, Mar 3, 11 a.m., N-200/Comm. Rm. POC: Greg Marshall at ext. 4-4673.

Hispanic Advisory Committee for Employees, Mar 4, 11:45 a.m. to 12:30 p.m., N-239/Rm. 177. POC: Carlos Torrez at ext. 4-5797.

Environmental, Health & Safety Monthly Information Forum, Mar 4, 8:30 a.m. to 9:30 a.m., Bldg. 19/Rm. 1078. POC: Linda Vrabel at ext. 4-0924.

Ames African American Advisory Group Meeting, Mar 4, 11:30 a.m. to 12:30 p.m., N-241/Rm. 237. POC: Mary Buford Howard at ext. 4-5095.

Nat'l Association of Retired Federal Employees, S.J. Chapter #50, Meeting, Mar 5, at the Elk's Club, 44 W. Alma Avenue, San Jose. Social hour: 10:30 a.m. Prog. & bus. mtg. follow lunch at 11:30 a.m. POCs: Mr. Rod Peery, Pres., (650) 967-9418 or NARFE 1-800-627-3394.

Southbay FEW Chapter Meeting, Mar 9, 11:30 a.m. to 1:00 p.m., Bldg. 241, Rm B1. POC: Christine Munroe at ext. 4-4695.

Professional Administrative Council (PAC) Meeting, Mar 11, 10:30 a.m. to 11:30 a.m., Location TBD. POC: Janette Rocha, ext. 4-3371.

Ames Sailing Club Meeting, Mar 11, 11:30 a.m. to 1 p.m., N-262/Rm. 100. POC: Greg Sherwood, ext 4-0429. Web site: http://sail.arc.nasa.gov

Ames Classifieds

Ads for the next issue should be sent to astrogram@mail.arc.nasa.gov by the Monday following publication of the present issue and must be resubmitted for each issue. Ads must involve personal needs or items; no commercial/third-party ads and will run on space-available basis only. First-time ads are given priority. Ads must include home phone numbers; however, Ames extensions will be accepted for carpool and lost and found ads only.

Housing

20 yr old M seeks 1bd/1ba w/roommates (M/F) or without. \$400-900/mo from late March thru mid June while co-oping at Ames. Contact Patrick Murdock at email: gt4492a@prism.gatech.edu

Condo for rent in Fremont/Mission area: Large 2 bd/2ba, D/W, new W/D, gated complex, pool, vaulted ceilings, large deck and storage space, newly painted exterior, near H680/880/237. \$1,200/mo. Ali (408) 377-0949.

House for rent in center of Cupertino, 4 bds/2bas, swimming pool, washer/dryer, easy access to Lawrence Expressway, H 280, 85. 1,900/mo + deposit. Available now. James (408) 741-4922.

1 bdrm in 3bd/2 1/2 townhouse in Sunnyvale. Female, N/S, no pets. Close to Ames. \$425 + 1/3 utils + \$200 dep. Avail Mar 10. Ann (650) 962-8950.

Wanted: room near Ames for summer intern (female) from Jul 15 - Aug 15. Bryan (650) 574-5289.

Prof. female, with cat, seeks same to share townhouse in Moffett/Middlefield are of Mt. View. Must be clean, responsible, N/S. Townhouse offers master bd/ ba. w/ priv. patio; W/D; space for add'l furniture; lots of storage; rose garden; safe, quiet neighborhood. \$650 + 1/2 utils. Call (650) 969-7009.

Studio for rent. Mountain View, one mile from Ames. Month to month. \$670/mo + dep. Avail. now. Call (650) 965-0775.

Mountain View (one mile from Base) 2bd/1ba. Inside comp. redone. Enclosed garage & second parking space. No pets. One year lease: \$1,250/first and last mo + dep. Call (650) 965-0775.

Duplex For Rent: Santa Clara (905 Linden Dr & Washington St), 2bd/1ba, mbackyard, 1 car ga, laundry rm, storage rm. Available Mar 1. \$1,375, Call (650) 814-8666.

Room for rent, available now. Walking distance from Castro. Share: bathroom/kitchen/garden/laundry facilities. Near Hwy 101/237/85/ Cent. Exp. Rent: \$550 mo. Call (650) 969-3932 or email at: solemate@best.com

Temp. space available or part time use. Ideal for commuter or intern. Semi-private. Share: bathroom/ kitchen/phone/garden/laundry. Near Hwy 101 /237/85. Weekly: \$100 (+ one month). Call (650) 969-3932 or e-mail at: solemate@best.com

Roommate wanted: One bedroom available March 1 in great 3bd/2ba house near downtown Mountain View. Rent is \$735/mo + 1/3 expenses. Five mins to Ames. Nice, safe location. Separate large office room for computers and attached 2 car garage w/one space available. Call (650) 969-5581 or e-mail to human_dynamics@mindspring.com.

Transportation

'80 Toyota Corona, fresh engine, runs good, \$1,250 or B/O. Dan (650) 962-8869.

'83 Cad loaded runs good, \$2,500 or B/O. Dan (650) 962-8869.

'84 Mercury Cougar, automatic, air cond., V-6, am/fm stereo, mechanically sound, exc. running cond., 76K orig mls, \$2,200. Call (408) 263-3109 eves after 3:30 p.m. Email: jrenteria@mail.arc.nasa.gov

'88 Mazda RX-7 Convertible. Leather, BBS wheels, factory CD player, service records. Exc. condition. \$7,800. (650) 966-1206 nights or (831) 648-1423 weekends.

'89 Mazda 323 Hatchback, runs great, gd cond., 114K mls, \$2,000 or B/O. Call (408) 973-0778.

'89 Honda Accord LX Sedan. Only 25K mls! Bronze-colored. \$7,500. Joan or Bill at (408) 867-7511.

'89 Chevrolet, Berretta, AT, 95K mls, 2.8L, Very good condition, \$2,400. Call (650) 691-9041.

'90 Ford Taurus GL, gold 4-dr sedan, 85K mls, auto trans, air cond, power windows/locks, CD/radio, beautiful cond. \$3,950 or B/O. Call (408) 377-9214.

'93 Jeep Cherokee Country, 4 wheel drive. Tow/air/cruise, nice. \$10,000 or B/O. Bill (831) 634-1665.

Miscellaneous

Moffett Field hair salon, Open Tues-Fri from 8:30 a.m. to 5 p.m., and Sat 9 a.m. to 3 p.m. Custom coloring and cutting, perms, conditioning treatments. Convenient "lunchtime" appointments. Women & men Call (650) 603-9916 for appointment.

Two Yamaha NS-5 speakers. 12" w.x12" d.x21" h. Walnut veneer, black cloth. Excellent sound and appearance. \$50/pr. Call (650) 813-9774.

Sony 13" Trinitron color monitor, CPD-1302. Multisync. 900 x 560 viewable pixels. \$50. Call (650) 813-9774.

Stereo System, 480 watt Kenwood receiver, 5 CD changer, and equalizer. 3-way speakers (2) with 12" woofers + 60 watt powered subwoofer. Almost new; too much power for dorm room. \$650 or B/O. Call (408) 257-3175.

Palm Pilot Professional PDA - \$135; PowerMac 7100/80: 40mb RAM, 1Gig HD, CD, NEC 15" Mon, HP color printer, Visioneer Vx scanner - \$825. Call (408) 955-9122.

Laptop, Extensa 650, 75mHz Pent., Active Matrix, CD; SCSI PCMCIA card; HP color portable printer; 28.8 modem. \$775. Call (408) 955-9122.

Compaq Contura 430C laptop computer w/1MB hard drive, 32K RAM, (2) PCMCIA slots, 33.6 modem card, and carrying case. Needs battery. Asking \$650. Adrian (408) 732-3340 (eves.) or email at: ahevener@mail.arc.nasa.gov

My computer/electronics leftovers for sale: www.geocities.com/SiliconValley/Foothills/1384. Call (408) 295-2160.

JVC stereo 130wt w/remote \$200; JVC 5 CD player \$175. Bob (408) 736-4030.

Upholstered sofa and chair, contemporary, ivory, \$300. Call (408) 295-2160.

Exercise bike, Schwinn Airdyne with reading stand, barely used: \$300 or B/O. Rocelia (408) 246-8432.

Dependable, mature, NASA intern available for house/pet/plant sitting. Very flexible, price negotiable, references avail. Katie (408) 316-9765.

Yamaha Clavanova piano model CVP-10PE piano; Advanced Wave Memory; ex. cond.; full grand piano keybrd/weighted; dual foot pedal; polished ebony finish; flash memory; digital reverb. and more. Reduced to \$3,000 or reasonable offer. Wood burning fireplace insert, Fisher brand, w/glass windowed doors, can take up to 24" logs; very gd cond; \$300 or reasonable offer. Dave (510) 471-3466 or e-mail at: yobow1@yahoo.com

Beaver RX-550 two place ultralight trainer. Strobes, helmets, intercom, full assembly manual included. Subaru four stroke engine. One spare engine. New three bladed adjustable prop. Airframe rebuilt. Needs work. Invested \$8,000 will sell for \$5,200 as is. Ron (408) 943-1576 or email ron.b@cheerful.com

Sony 13" Trinitron color monitor, CPD-1302. Multisync. 900x560 viewable pixels. \$50. 2 Yamaha NS-5 speakers. 12" w.x12" d.x21" h. walnut veneer, black cloth. Exc. sound and appearance. \$50/pr. Call (650) 813-9774.

Vacation rental

Lake Tahoe-Squaw Valley Townhse, 3bd/2ba, View of slopes, close to lifts. Wkend \$400, midwk \$150 nite. Includes linens, firewd, cleaning service. Call (650) 968-4155, DBMckellar@aol.com

Astrogram deadlines

All Ames employees are invited to submit articles relating to Ames projects and activities for publication in the *Astrogram*. When submitting stories or ads for publication, submit your material, along with any questions, in MS word by e-mail to astrogram@mail.arc.nasa.gov on or before the deadline.

DEADLINE	PUBLICATION
MON, MAR 1	FRI, MAR 12
MON, MAR 15	FRI, MAR 26

Ames Activities

Stanford blood center to hold yearly drive

Ames will be hosting a blood drive for Stanford Blood Center on March 11 at the Moffett Training and Conference Center, Building 3, Patio Room.

Ames employees, contractors, students and resident agency personnel have done a superb job in the past, lending support and making these drives a resounding success.

Once again, we ask for your participation in this worthy and noble cause. Registration is via the world wide web.

To make an appointment, go to URL: [http://128.102.89.146/4d.acgi\\$PickClass?17334](http://128.102.89.146/4d.acgi$PickClass?17334).

You can also register at <http://q.arc.nasa.gov/qh/blood/index.htm>. Click on Training, and then register to give blood by selecting a time slot.

There are 5 individuals per slot, so be sure to report promptly for your appointment. If you have any questions about registering, please call ext. 4-2056 and Holly will help you get into the Training data base.

If you wish to participate in the Bone Marrow Registry, or if you have any other questions about the blood donation process, please contact the Blood Drive coordinator, Chaz Czaplicki at ext. 4-6942.

Living and working in Russia

continued from page 4

wooden church constructed in 1666. It was awe-inspiring to look at this 333-year-old wooden structure, still standing in the original location where it was first constructed using no nails. It resembles an American log cabin.

On the drive back, we stopped for dinner at the same café where we had taken a break that morning. The menu is the same all day. Since my favorite beet salad was gone, I had some rice, borsch (beet soup) and hot tea for 18 rubles (75 cents). Feliks said the proprietress upon seeing us enter the restaurant, mumbled, "That damn bus again." This is a holdover from the Soviet period — she saw us as work, not as a way to increase her income.

By ANN HUTCHISON 

JASON '99

Bring your children (ages 8 and up) to this year's JASON Project.

Tues, 3/2	8:30 a.m.
Wed, 3/3	1:00 p.m.
Sat, 3/6	11:30 a.m.
Tues, 3/9	11:30 a.m.
Fri, 3/12	8:30 a.m.

For more information, call Lisa Marie Gonzales at ext. 4-2046 or at lmgonzales@mail.arc.nasa.gov

Logo Contest/Win \$500

To commemorate Ames' 60th anniversary, the NASA Exchange is sponsoring a logo contest. The theme of the anniversary year is "Celebrating 60 years of Excellence." A \$500 prize will be awarded to the person or group submitting the selected winning entry.

Entrants can incorporate the theme within their logo design or not. Further, while Ames is celebrating its history, judges will place some emphasis on how well the proposed logo reflects the center's new missions and contributions to the future.

The selected logo will be used throughout the year as a visible representation of Ames' 60 years of contributions to the nation's aerospace programs.

All entries must be submitted to Deb Renick, MS 19-1, ext. 4-0290, drenick@mail.arc.nasa.gov by March 26.

All entries become the property of the Ames Exchange. The judging decision of the Exchange is final.

THE AMES  **Astrogram**

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Moffett Field, California 94035-1000

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